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MINING AND RECLAMATION PLAN

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P-15, P-17 URANIUM MINE

JACKPILE-PAGUATE MINESITE

VALENCIA COUNTY, NEW MEXICO

SUBMITTED BY
THE ANACONDA COMPANY
URANIUM DIVISION

MARCH 1976

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U. S. GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO



T. R. Beck
General Manager

March 8, 1976

U. S. Geological Survey
P. O. Box 829
Carlsbad, New Mexico 88220

Attention: Mr. R. S. Fulton, Area Mining Supervisor

Gentlemen:

We are herewith submitting for approval mining plans for two proposed new mines. The two mines are identified as P-15 and P-17. This application is in conformity with the Code of Federal Regulations, Title 30, Part 231.10(c), Title 25, Part 177.7, and also with Section 102(2)(c) of the National Environmental Protection Act of 1969.

The two new areas are located in a southerly direction from the presently operating P-10 mine. P-15 mine is in Section 9, T10N, R5W, and P-17 mine is in Sections 9 and 16, T10N, R5W. Both mines are within the boundaries of "Lease 4" granted to The Anaconda Company by the Pueblo of Laguna.

Attached you will find one copy of two plan maps for each of the areas involved. A surface map has been prepared showing the topography and drainage of the areas, and superimposed on them are the proposed surface facilities that will be installed. The other two maps indicate the location of the orebodies and the general underground rail haulage drift and raise layout for P-15 and P-17 mines.

Description of Operation: P-15 Mine

The P-15 mine workings are adjacent to the southernmost end of P-10 mine and extend southward for approximately 3200 feet. The ore in this area is vertically distributed from the base to the top of the Jackpile Sandstone Formation. The ore lenses shown on the accompanying mine plan are locally designated by prefix letters as either A, B, or C zones. The letters A, B, and C indicate respectively the top, middle, or lower one third of the Jackpile Sandstone. The estimated reserve from surface drilling indicates 517,644 tons of ore.

A vertical shaft 625 feet deep will be required to reach the orebody. The location of this shaft is shown on the surface and mine plan maps of the area. The shaft is planned to be circular with 12 foot inside diameter, and concrete lined to its full depth. It will serve as an ore hoisting as well as personnel and supply shaft. A mining and development contractor will be contracted to sink the shaft, cut the station, and do a portion of the haulage drift and raise development.

Mining schedules call for the shaft to be started in mid 1976, and ore production to commence at the beginning of 1978. It is anticipated that the life of the mine from start of development through the end of mining will be approximately seven years.

The shaft station and haulage drifts in this mine will be located immediately above the contact with the underlying Brushy Basin shale because of the deposition of the ore in the "C" zone. The attached mine layout plan shows the proposed shaft, haulage drifts, raises, and ventilation shafts. The orebodies will be mined by modified room and pillar sublevel stoping methods. Raises will be driven from the haulage level directly into the overlying ore lenses, and the ore will be developed by small access drifts driven through and around the mineralized areas. Stoping will then take place with internal waste pillars being left in place for ground support. Conventional ground support methods using rock bolts, steel sets, timber sets, stulls, and cribbing will be utilized. It is anticipated that no surface subsidence will occur since the orebodies are small, thin, and sporadically distributed.

Surface Layout

The location of proposed access and ore haulage roads, buildings, shaft sites, ventilation shafts, and other surface facilities are shown on the accompanying topographic map. The haulage roads will be approximately 50 feet wide in order to accommodate off highway truck haulage units for ore stockpiling and shipping. The access road will be approximately 30 feet wide and will be used only by normal highway vehicles. The roads have been situated, in so far as possible, to avoid any excess cut and fill. Culverts will be provided for major drainage channels crossed by the roads. Waste derived from mining will be used for paving material. There are 8900 feet of haulage roads, and 2800 feet of access roads proposed, comprising a total area of 12.14 acres.

The area surrounding the shaft site from which the contours have been omitted from the topographic map are areas of excavation and waste fill.

At the initiation of excavation activity for the mine yard area, topsoil will be removed and stored in a manner as to be utilized for covering of the disturbed area at the conclusion of mining activity. Most of the development waste will be used to level this area for a supply storage and ore stockpiling yard. Approximately 131,000 tons of waste will be mined from the following development operations:

Shaft	6,412 tons
Haulage Drift	105,408 tons
Raise	14,362 tons
Ventilation Shaft	4,939 tons

The mine yard is 700 feet long and 450 feet wide and covers 7.23 acres. Three buildings will be erected here. A combination office-change house building will be 50 feet wide by 100 feet long. A shop building and hoist house will be located as shown on the map and will be approximately 50 by 80 feet and 40 by 40 feet respectively.

Environmental Impact

At the present time it cannot accurately be predicted how much water will be pumped from the mine, although it is anticipated that the inflow will be quite small. The orebodies are located in strata that are up dip from presently operating mines, and are naturally drained by surrounding ravines and canyons. Earthfill settling ponds will be constructed northeast of the shaft to settle out all particulate matter from the mine water, and evaporate the water rather than to allow it to overflow into dry stream channels. The mine water will be piped from the shaft to the pond site. The settling ponds will cover 1.28 acres.

Sewage lagoons approximately .75 acres in areal extent will be constructed north of the shaft of sufficient capacity to dispose of all the toilet, shower, and other like wastes created at the mine site.

Eleven ventilation shafts are planned in addition to the main hoisting shaft. The shafts will be drilled and reamed to 48 inch diameter and cased with 42 inch inside diameter casing. The main shaft will be downcast along with four of the ventilation shafts, and the remaining seven ventilation shafts will be upcast. The shafts have been located so that the haulage drifts will normally be under positive pressure and the stopes will be under negative pressure. The shafts will be bored by a drilling contractor using large portable drills to accomplish the work. The minimum site required to

set up the drill rig and supporting equipment is 50 feet by 150 feet. The existing network of roads on Black Mesa will be utilized to gain access to the drill sites. The ventilation shaft depths and surface areas required are tabulated below:

<u>Shaft No.</u>	<u>Depth</u>	<u>Surface Area</u>
1	540'	7500 Sq.Ft.
2	500	7500
3	463	7500
4	578	7500
5	432	7500
6	457	7500
7	495	7500
8	593	7500
9	515	7500
10	626	7500
11	650	7500

The surface area disturbed will amount to 1.89 acres. Although each of the ventilation shafts will be capable of handling approximately 40,000 CFM of ventilating air, only 200,000 to 250,000 CFM will be required at maximum production.

All power lines shown on the topographic map are temporary and will be removed at the end of the mining operation.

The general plan may be altered as supplementary exploration drilling is completed, or to suit presently unknown conditions that may be encountered underground.

Reclamation

At the conclusion of the operation, mine openings will be sealed in accordance with regulations in effect at that time and reclamation activities will be initiated.

Present reclamation plans call for grading, scarifying, liming if necessary, and seeding of haulage roads, access roads and ventilation shaft areas. In the mine yard area, topsoil excavated at the initiation of activity will be dispersed and seeding will be accomplished. The settling-evaporation ponds and sewage lagoon will be backfilled, graded and seeding will be accomplished at the termination of the operation.

Permanent buildings erected for the P-15 mining operation will be disposed of pursuant to the terms of the Lease Agreement.

Description of Operation: P-17 Mine

The P-17 mine is located southeastward from P-15 mine, and the sequences of events and mining methods will be essentially the same as those described for P-15. A vertical shaft 575' deep will be sunk to gain access to the orebody. It will be concrete lined, 12 feet in diameter, and used for hoisting ore, supplies, and personnel. This shaft as well as part of the primary development will also be completed by a contractor.

Shaft sinking is scheduled to start in January of 1977, and the first ore production to begin at mid year of 1978. The orebody contains an estimated 594,666 tons of ore, and approximately eight years will be required to develop and mine it. All of the ore in this mine is located in either the "A" or "B" zone, and as a consequence the shaft station and haulage drifts will be at a somewhat higher level in the Jackpile Sandstone.

The attached underground plan map shows the general mine layout with the haulage drifts, raises, ventilation shafts, and stations indicated. The development and ore extraction methods will be the same as planned in P-15 mine in that raises will be driven directly into the ore, stope development drifts driven through and around the perimeter of the orebodies, followed by stoping the remaining ore pillars. Again the waste pillars will be left for ground support, with rock bolts, steel and timber sets, stulls, and cribbing being used as primary ground support.

Surface Layout

The attached contour map for the P-17 mine area shows the surface installations that are planned. An ore haulage road leading from P-17 shaft to a junction near P-15 will be 50 feet wide and 3500 feet in distance. A 30 foot wide road starting in the P-15 area and terminating at an explosive storage area between the two mines is 1100 feet long. The acreage involved in both roads is 4.89 acres. The explosive storage buildings are quite small, being only 20 feet by 20 feet for the detonator magazine, and 20 feet by 50 feet for the dynamite magazine. Explosive storage regulations require a relatively large area be cleaned and free of all flammable material. The area required by these regulations is approximately 2.58 acres. The location of the magazines complies with the latest available "American Table of Distances for Storage of Explosives."

The mine yard for P-17 shaft will cover 5.51 acres and will be constructed primarily of fill from waste development mining. At the initiation of excavation activity for the mine yard area, topsoil will be removed and stored in a manner as to be utilized for covering of the disturbed area at the conclusion of mining activity.

Slightly over 141,000 tons of waste will be hoisted from the following development work:

Shaft	5,899 tons
Haulage Drift	113,265 tons
Raise	15,494 tons
Ventilation Shaft	6,679 tons

Part of this material will be used for road building and paving.

The buildings erected at this site will be identical to those at P-15 mine. They are a 50 foot by 100 foot office-change house, 50 foot by 80 foot shop, and a 40 foot by 40 foot hoist house.

Environmental Impact

Here as at P-15, the ground water situation is unknown, however, the inflow to this mine should be a minimum amount due to the proximity of other mines that are down dip and the closeness of the Jackpile Sandstone outcrop. There is very little recharge to the formation. Settling and evaporation ponds to handle the mine water are planned northeast of the shaft. The ponds cover 1.29 acres.

Sewage lagoons will be located near the settling ponds and will be .72 acres in size. The lagoons will be capable of handling all the sanitary waste products created at the mine.

Sixteen ventilation shafts are to be drilled to 48 inch diameter and cased to 42 inch inside diameter. The shafts, their depths, and the surface area disturbed by the drill sites are as listed below:

<u>Shaft No.</u>	<u>Depth</u>	<u>Surface Area</u>
1	500'	7500 Sq.Ft.
2	603	7500
3	526	7500
4	415	7500
5	575	7500
6	625	7500

(con't)	<u>Shaft No.</u>	<u>Depth</u>	<u>Surface Area</u>
	7	392'	7500 Sq.Ft.
	8	539	7500
	9	349	7500
	10	604	7500
	11	524	7500
	12	561	7500
	13	611	7500
	14	516	7500
	15	369	7500
	16	261	7500

Exploration drilling roads that now exist will be used for access, and the total area required for the drill sites is 2.75 acres.

The power lines indicated on the topographic map will be removed when the mine is closed.

The general plan may be altered as supplementary exploration drilling is completed, or to suit presently unknown conditions that may be encountered underground.

Reclamation

At the conclusion of the operation, mine openings will be sealed in accordance with regulations in effect at that time and reclamation activities will be initiated.

Present reclamation plans call for grading, scarifying, liming if necessary, and seeding the haulage roads, the road to the explosive storage area, the ventilation shaft areas and the area disturbed for the explosive storage. In the mine yard area, topsoil excavated at the initiation of activity will be dispersed and seeding will be accomplished. The settling-evaporation ponds and sewage lagoon will be backfilled, graded and seeding will be accomplished at the termination of activity.

Permanent buildings erected for the P-17 mining operation will be disposed of pursuant to the terms of the Lease Agreement.

We hope the mining plans for the P-15 and P-17 projects contained herein will meet with your approval and look forward to your early favorable response.

U. S. Geological Survey

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March 8, 1976

Very truly yours,

TR Beck

T. R. Beck

TRB:sr

Enclosure: 1 set of 4 maps